FAA AVIATION NEWS

MAY 1969

COVER

With land for new airports in the metropolitan areas almost impossible to obtain, interest is turning to possible use of rivers and lakes adjacent to large cities. For a fresh look at seaplane bases, see page 6.

FAA AVIATION NEWS

DEPARTMENT OF TRANSPORTATION / **FEDERAL AVIATION ADMINISTRATION** VOL. 8 NO. 1

CONTENTS / May 1969

3 Rules and Regulations—Who Makes Them?

4 Pilots and Pesticides, Part 2

6 Liquid Runways

7 New Training Standards for Tomorrow's Mechanics

8 Freddie's Freak-out

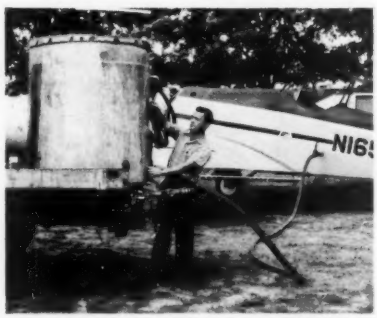
10 Rag Wings

12 Siberian Furlift

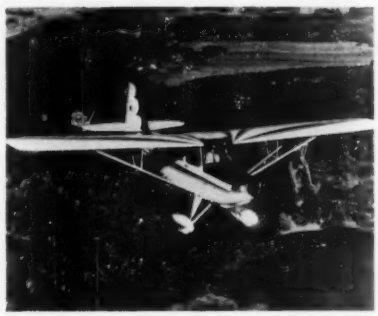
13 Pilot Briefs

14 News Log: John H. Shaffer New FAA Administrator . . . FAA Tests Low-cost Anti-icing Surfaces . . . Air Traffic Control Contracts Awarded . . . Green Taxiway Lights to Speed Ground Handling

15 Flight Forum



Page 4



Page 10

John H. Shaffer, *Administrator, FAA*

Charles G. Warnick, *Director of Information Services*

Lewis D. Gelfan, *Editor*

Frank J. Clifford, *Assoc. Editor.* Abner B. Cohen, *Art Director*

FAA AVIATION NEWS is published by the Office of Information Services, Federal Aviation Administration, Washington, D.C. 20590, in the interest of aviation safety and to acquaint readers with the policies and programs of the agency. The use of funds for printing FAA AVIATION NEWS was approved by the Director of the Bureau of the Budget, July 14, 1967. Send change of address to the Superintendent of Documents, U.S. Government Printing Office, Washington, D.C. 20402, with a mailing label from any recent issue. Single copies of FAA AVIATION NEWS may be purchased from the Superintendent of Documents for 20 cents each.

Superintendent of Documents,
Government Printing Office.
Washington, D.C. 20402

Please enter my subscription to FAA AVIATION NEWS for one year at $2.00 ☐, two years at $4.00 ☐, or three years at $6.00 ☐, 50 cents a year additional for foreign mailing. Enclosed find $..... (Check or money order)

Name .....

Address .....

.....

City, State and ZIP code.....

Comments on proposed rule changes are carefully read and evaluated.

General Counsel Nathaniel H. Goodrich, supervises rule making.

RULES and REGULATIONS— Who Makes Them?

AN airman from Missouri was starting to worry.

Said he: "It's one thing for FAA to bother their heads over the proficiency of Sunday pilots, but expecting us commercial pilots, who fly airplanes for a living, to take periodic flight instruction or proficiency checks is a balmy idea. It would cost us a fortune. Besides, where would they find enough flight instructors to check the instructors? If they had asked me . . ."

In point of fact, he had been asked. Notice of Proposed Rulemaking No. 67-56, which appeared in the Federal Register on December 29, 1967, was officially withdrawn a year later when the agency had studied hundreds of comments on the issue, which would have affected half a million pilots. Serious objections, including the chance of unavoidable long term grounding of experienced airmen as well as overburdening certain portions of the national airspace eventually prevailed.

The Administrative Procedure Act, passed by Congress in 1946 and recodified in 1966 into Title 5 of the U.S. Code, requires that all agencies publish rulemaking proposals in advance and allow time for public comment to be received and considered before establishing a rule. Only in special circumstances can this procedure be omitted.

"All very well," says the airman from Missouri, "but how can FAA expect us to help solve their problems if the only way we hear about them is on the grapevine?"

FAA spreads the word on proposed rulemaking by issuing news releases. *FAA Aviation News* regularly calls the attention of readers to proposed changes and provides copies of the proposal on request.

NPRMs are sent to appropriate segments of the aviation industry by means of mailing lists maintained by individual FAA offices.

Subscribers to Federal Aviation Regulations are also sent Notices of Proposed Rule Making pertaining to the specific FAR part. *FAA Aviation News* publishes quarterly the prices of all FARs and the number of changes that have been made.

To purchase FARs write:
Superintendent of Documents
U. S. Government Printing Office
Washington, D. C. 20402

All public comments are available for inspection in the "docket file" at FAA Washington Headquarters. Airspace dockets (covering proposed usage of local airspace) are generally maintained where the notice is issued, either at one of FAA's regional offices or Washington Headquarters. The location of the "docket file" is stated in the notice.

MANY airmen do not realize the influence their ideas can have on the final shape of a Federal Aviation Regulation. One has only to review the history of some recent FARs to discover how clearly the voice of the people is heard in FAA Headquarters. Consider, for example, the rule proposed in 1965 (NPRM 65-35) to give certain general aviation pilots who fly adequately instrumented and maintained airplanes, and who can demonstrate skill in operating these aircraft safely under instrument weather conditions, the same privileges of extended operation as commercial transport pilots.

In accordance with law, a formal Notice of Proposed Rule Making was published in the *Federal Register*. Interested parties were invited to send their comments to the FAA Rules Docket in the Office of the General Counsel within 90 days.

RESPONSE from the aviation public was swift and voluminous. Replies came from Congressmen and fixed-base operators, aviation industry associations and state aviation departments, individual pilots, as well as pilot organizations.

The great majority of the comments favored the proposed rule, but many objected to the instruments required, to the number of pilots and to various sections in the proposal they felt were inconsistent.

Based on public comments received in response to the notice, and upon review within the FAA, a number of changes were made in the proposed rule. Comments on the notice indicated both the desire and the capability on the part of some operators of small non-turbojet airplanes to conduct Category II operations. Therefore, the rules adopted contained no limitation on the size of airplanes that may be approved for Category II operation.

Partial or complete withdrawal of proposed regulations are by no means unusual.

Recently, FAA proposed to limit all operations conducted under Part 121 (air carriers and commercial operators of large aircraft) and Part 129 (foreign air carriers) and all large pressurized and turbojet airplanes in controlled airspace to IFR operation. The purpose here again was to maintain safety in a period of growing air traffic. But following a strong negative public response, Notice 67-55 was dropped.

Despite the fact that the FAA considers all arguments for and against a rule before making a decision, FAA rulemaking is not conducted like a popularity contest. FAA balances carefully the exigencies of safety against the probable burden to airspace users, but safety hazards must be dealt with, even when inconvenient to pilots. If a better means of eliminating a hazard than the proposed rule is brought forward, the agency is only too happy to consider it.

The promotion of air commerce and the protection of airmen and the public are both part of the FAA mission, and the judgment of a Solomon is sometimes called for in holding the two considerations in proper balance. The agency claims no biblical connections, but it tries to be just. ■

PILOTS & PESTICIDES

Chemical warfare against agricultural pests demands rigid control and accent on safety

PART 2

STRINGENT governmental control over the marketing and application of chemical pesticides (*FAA Aviation News,* April) protects the *public* from the health hazards of crop dusting and spraying. The safety of the *pilot-applicator,* however, depends very largely on his own behavior. If he knows his chemicals and safeguards himself from overexposure, he should have no trouble.

On the other hand, he must have no illusions about the fact that any chemical that will kill bugs or plants may, in sufficient quantity, be fatal to him if he is careless.

A cropduster-pilot is exposed to an environment where these chemicals tend to accumulate and even concentrate: the chemical containers, pumps and hoses, the airplane and its spraying or dusting attachments, the clothes he wears—even his own body surfaces.

Casually wiping his face with contaminated fingers could introduce enough of a chemical into his mouth to cause serious illness. Less than a drop of several commonly used chemicals, such as Phosdrin or Phorate in their pure form is considered a lethal dose, taken orally. A drop or two of TEPP, absorbed through the skin can be fatal. Generally, two to four times the oral dose must be applied to the skin to produce an equivalent effect.

Most professional cropduster pilots know of these dangers, and few deaths can be ascribed directly to pesticide poisoning. Deaths usually follow a crash in which the hopper ruptures and drenches the pilot with the pesticidal solution.

Death Within 30 Minutes

In one recent case, a pilot spraying a mixture of Systox and TEPP lost control of his aircraft at about 200 feet and crashed. The hopper ruptured and soaked the pilot, who was otherwise uninjured, with spray material. Not realizing his danger, the pilot walked over to his flagman and was talking to him when abruptly he collapsed. Although he was washed as thoroughly as possible at a nearby farmhouse and brought to a hospital within 30 minutes, the pilot died of poisoning.

The lesson here is twofold. Not only did the pilot waste valuable time after his massive exposure (his only chance for survival depended upon immediate and complete washing), but he also failed to recognize that the symptoms he had experienced over the past three weeks—overtiredness, blurred vision, etc.—signaled the accumulating effects of toxic chemicals and called for grounding and a visit to the doctor. Impaired health undoubtedly contributed to his loss of control of the airplane.

FAA is particularly concerned with such cumulative effects of milder exposures on flight performance. The low flying required in crop dusting calls for keen vision and swift judgment, as well as uninhibited reflexes—all of which may be affected, almost unnoticeably, by chronic poisoning.

Some chemicals can impair the required faculties with relatively low dosages. Some of the 40 to 50 fatal accidents occurring each year in crop dusting have resulted from some degree of toxic impairment.

Which pesticides are the most dangerous for the duster pilot and his ground crew?

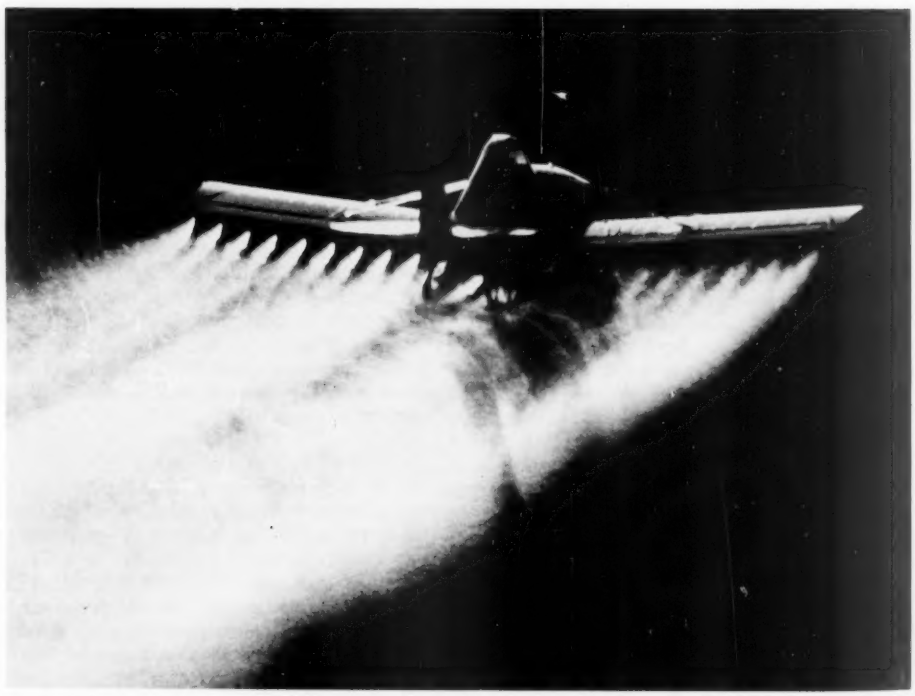
The *organophosphate* group includes some of the deadliest poisons in use, such as tetraethyl pyrophosphate (TEPP) and Phosdrin. Malathion, the least toxic of the organophosphates, is nevertheless orally dangerous in quantities of a teaspoonful or so.

These chemicals destroy animal life by lowering the level of *cholinesterese,* an enzyme required for normal function of the nervous system and for muscular movement. A large enough dose causes death by paralysis of all body muscles, including those involved in breathing.

Symptoms of organophosphate poisoning are well known to crop dusters, either through the vigorous safety programs of state or regional aerial applicator organizations or through bitter personal experience. When the first signs appear, such as headache, nausea, changes in vision, excessive sweating or difficulty in breathing, many pilots take atropine, a *partial* antidote. A careful pilot will ground himself at this point and see a doctor, who will administer a more effective antidote, pralidoxime.

The *organochlorines,* including endrin, dieldrin and DDT, produce their toxic effects by excessive stimulation of the central nervous system. Some early signs of poisoning are nervousness and twitching. If the dose is large enough, convulsions follow. Endrin is the most toxic of the organochlorine pesticides. Little more than a drop of pure material taken orally can produce violent convulsions, and could cause death; two or three drops absorbed through the skin may prove equally dangerous.

DDT is sometimes called a "safe" pesticide to handle, because it is not absorbed



Crop dusting pilots face a double hazard—low flying, and accidental poisoning from the pesticides they spray. Experienced aerial applicator pilots take the time to become thoroughly familiar with the characteristics of the poisons being used and safe operators have antidotes readily available.

through the skin unless it is in solution. However, less than a teaspoonful taken by mouth can cause severe illness.

Organochlorine poisoning is treated by a physician who administers barbiturates or other depressant drugs to control convulsions. No self medication should be attempted; professional medical attention is required.

Derivatives of *dinitrophenol* used extensively for the control of mites, aphids, scale insects and other pests in overwintering phases, and as herbicides, are especially dangerous when inhaled, although they may also be absorbed through the skin. DNOC, for example, increases the oxidative metabolism, or heat production in the body. A victim of DNOC poisoning will eventually collapse from an affliction similar to a heat stroke, and if untreated he may die. DNOC is a cumulative poison and is excreted very slowly by human beings. An attempt to treat the symptoms of DNOC poisoning with atropine sulphate could be disastrous—the body temperature will go even higher.

Paraquat, a relatively new but widely used herbicide, is a chemical that must be handled with great care. While a relatively large internal dose would be required to kill a man (the only poisonings reported thus far have been by mouth), it has the peculiar effect of causing abnormal cell growth in the lungs which in later stages block the air passages, causing the individual to suffocate. If the duster pilot using Paraquat experiences burning in the mouth or throat, he should see a doctor immediately. A critical condition could develop in 12 to 20 days.

Compounds of arsenic, still in general use, are also highly toxic. The lethal dose of arsenic trioxide for an adult human is only a little more than 100 mg (a postage stamp weighs 65 mg.). Fortunately, an injection of dimercaprol, (BAL), administered by a physician, can save a life. The principal early symptoms of arsenic poisoning are severe abdominal pain and vomiting.

The chart below is a general guide to the toxicity and the symptoms of various pesticides. It must be born in mind that human response to poisons varies considerably; a dose that might merely inconvenience one individual could totally incapacitate another. Body weight is an important factor. For this reason, children are extremely susceptible to pesticide poisoning, and great care must be taken to prevent them from playing around spray equipment or aircraft.

Similarly, no attempt has been made to list all of the possible symptoms of pesticide poisoning which may be experienced. Many reactions are specific to individuals as well as to chemicals, and some side effects could be due to a variety of body disturbances—only a physician can make an accurate diagnosis.

The fungicide Thiram, for example, temporarily reduces the body's tolerance for alcohol in some persons. A loss of sexual potency is sometimes ascribed to Parathion. Proper treatment may reverse these conditions with no lasting ill effects.

Pre-season Physical Important

Research at FAA's Civil Aeromedical Institute (CAMI), in cooperation with the Food and Drug Administration, has developed important techniques for identifying pesticidal poisoning. In particular, success has been achieved in the measurement of the cholinesterese enzyme level in the blood. All pilots who may be exposed to organophosphates in the course of a dusting season should have a baseline measurement made at the start of the season. This should be followed by periodic checks during the season to monitor possible chemical absorption which may be impairing health without their knowledge. Waiting for obvious symptoms to appear is dangerous.

For the location of the FDA laboratories where this service is performed without charge write or call: Toxicology Section, Pesticides Program, 1600 Clifton Road, N.E., Atlanta, Ga. 30333. Pilots may also apply directly to CAMI, Federal Aviation Administration, P.O. Box 25082, Oklahoma City, Oklahoma 73125.

Paul W. Smith, Ph.D.

SIX SAFETY RULES

1. Keep chemicals in the original labeled containers for accurate identification—in case an antidote is needed.
2. Read the label before opening a chemical container. It is unsafe to remove the lid before knowing exactly what is inside.
3. Wash hands and face as often as possible when spraying or dusting to reduce skin contamination from the suck-back into the cockpit during swath runs.
4. Use a respirator when handling chemicals as well as when flying. Wear gloves for all contact with aircraft or chemical containers. Keep both clean.
5. Wear clean protective clothes from head to foot and change twice daily on all-day jobs, and immediately after contamination by splashing or a spill.
6. Have periodic medical check-ups —don't try to be your own physician.

PROBABLE LETHAL DOSES OF VARIOUS PESTICIDES FOR A 150-POUND MAN

(Pure chemical or concentrated solution)
(One-tenth of this dosage can impair your flight performance)

Compound	Oral	Dermal	Symptoms
ORGANOPHOSPHATES			
1. Tetraethyl Pyrophosphate (TEPP)	Less than one drop	Less than two drops	Nearly immediate visual disturbance, muscle twitching, headache, nausea, cramps, sweating
2. Phosdrin	Little more than one drop	Little less than one drop	Same as above
3. Demeton	Little more than one drop	Two or three drops	Headache, pressure on eyeballs, blurred vision, miosis, nausea, tightness in chest.
4. Parathion	Two drops	Four drops	Same as above
5. Diazinon	½ teaspoon	1½ teaspoon	Same as above
6. Malathion	One or two teaspoons	Poorly absorbed	Same as above
ORGANOCHLORINES			
1. Endrin	Little more than one drop	Two or three drops	Insomnia, temporary deafness, dizziness, weakness in legs, abdominal pain, usually without vomiting.
2. DDT	Less than one teaspoon	Poorly absorbed	Burning or prickling of tongue, lips, parts of face, dizziness, feeling of confusion, tremors
HERBICIDES			
1. 2, 4-D	Less than one teaspoon	Poorly absorbed	Muscle twitching, hyporeflexia, appetite loss.
2. DNOC	Less than ½ teaspoon	Less than 1 teaspoon	Fatigue, restlessness, anxiety, sweating, thirst, high fever
3. Paraquat	One teaspoon	Unknown	Burning mouth and throat
4. Arsenic Trioxide	A few drops	Poorly absorbed	Vomiting, abdominal pain.

←

** The figures are approximations. Women who handle pesticides should be aware that female animals are generally more susceptible than males and that much smaller doses than those given above may be dangerous for them. There are some exceptions, particularly among the organochlorines, where females seem to be able to withstand doses nearly twice as great as those that affect males. For more information, see "Emergency Information for Treating Poisoning," a Public Health Service publication (No. 476) available from the Superintendent of Documents, Washington, D.C. 20402, 55 cents.*

LIQUID RUNWAYS

A waterport can be an airport

With ample turning radius and sheltered mooring area, Kenmore Air Harbor, located on Seattle's Lake Washington, makes an ideal seaplane base.

IN this age of expensive real estate, which is adding tremendously to the cost of airport construction, additional consideration may be given to seaplane bases as airplane terminals. Seaplane bases may be the answer to commuter traffic in some metropolitan areas where land for further airport development simply does not exist.

A prime example of the utility and economic feasibility of a downtown seaplane facility can be seen in Manhattan where air travelers have two points of entry, one at Wall Street and the other at 23rd Street—both on the East River.

In 1968, eight air taxi operators brought 4,180 flights into these two seaplane bases, carrying 14,955 passengers, most of whom were commuters flying in from their homes on Long Island, upper New York and Connecticut. The operators paid New York City $18,760 in landing fees for the year—a modest sum which barely suggests the potential for waterborne aircraft in a metropolitan area.

At the end of 1968, there were 409 seaplane bases listed with FAA, of which 182 were in Alaska. At last count in December 1965 (when FAA discontinued maintaining a separate tally of amphibians and float planes) there were 1,034 seaplanes listed by FAA as flyable. The actual number now flying is unknown, as is the number of land planes equipped with floats each year.

$1 Million Business

According to trade sources, however, between 200 and 250 sets of floats are sold each year, amounting to a little more than $1 million in sales. Only one American manufacturer—Lake Aircraft Corp.—is currently making an aircraft specifically designed for water operations.

A seaplane facility can be anything from little more than an open patch of water on a river, lake or deep-water harbor to an elaborate layout involving landing lights, extensive mooring areas, and onshore buildings for offices, hangars, repair facilities, recreation areas and shore-line docks and ramps. The extent of the development is restricted only by economic factors and a tangle of local laws. As far as FAA is concerned there are no restrictions imposed on a seaplane facility which do not also apply to a land airport.

This is not to say FAA is a disinterested onlooker. Federal Aviation Regulation 77, "Objects Affecting Navigable Airspace," spells out broad agency airport design standards, while FAR 77.25, "Civil Airport Imaginary Surfaces Related to Airport Reference Points," and FAR 77.27, "Civil Airport Imaginary Surfaces Related to Runways," give specific airspace requirements in relation to runway lengths.

In addition, the requirements of FAR 157, "Notice of Construction, Alteration, Activation, and Deactivation of Airports," must be satisfied.

The proposal to build a seaplane facility is also of concern to several other Federal and municipal agencies. The Department of Interior is responsible for conservation of natural resources. The U.S. Army Corps of Engineers must pass on all matters involving navigable inland waters. Municipalities and sub-divisions of municipalities, such as port commissions, are interested parties.

Aside from the legal restrictions, natural forces impose another set of limitations—and advantages. On the plus side is the vast amount of water available which can be used without any improvement at all. Most of it is in the public domain and all of it is depicted on general maps as well as aeronautical charts.

Motorized underwater platform lifts float plane bringing craft alongside the dock for handy fork-lift "pick up and park" operation.

Current and water level variations are important considerations. Landing and taking off can be conducted in water currents in excess of six knots (seven mph), but taxiing aircraft usually require assistance from a surface vessel. Water flowing faster than three knots (3.5 mph) requires careful taxiing while approaching docks and ramps. Current speeds and water level variations are matters of record and need not come as a surprise to designers of seaplane facilities. Where there are varying water levels, special design of docks, ramps and beaching gear may be necessary.

Operating Limits

Potentially hazardous water turbulence is always suspect at the junction of two rivers, in the vicinity of sharp bends, and where winds can whip the surface into waves. A light plane of 3,000 pounds or less, equipped with twin floats can generally operate safely in wave conditions of about 15 inches (measured from crest to trough). Bigger aircraft, in the 3,000 to 15,000 pound category, can safely handle seas running as high as two feet.

A seaplane facility should have sheltered mooring areas so that aircraft can be protected from the stresses caused by strong currents or by sudden turbulence from passing vessels. The mooring areas should have an ample turning radius, as well as a clear path for taxiing, and be far enough from ground features or structures so that anchored planes will not be forced into them by wind or current.

The expanding use of airplanes for recreation has focused more attention on the need for widely distributed, low-cost airports. In some areas, bodies of water, either naturally formed or man-made, appear to be the best answer. For business or pleasure, the seaplane offers a new dimension in flying. It can open inaccessible regions, and it has the potential of penetrating the metropolitan "jungle." ■

New Training Standards for Tomorrow's Mechanics

FAR-REACHING changes will be made in the training of aircraft mechanics if a current FAA proposal to amend Part 147 of the Federal Aviation Regulations is adopted.

The proposed amendment would modernize requirements for the certification and operation of mechanic schools and would establish new minimum curriculum requirements designed to produce graduates better able to meet the demands of today's aviation technology. The schools would be officially called "aviation maintenance technician schools," reflecting the broader training students would receive.

Student mechanics would still be trained thoroughly in metal working, riveting, welding, fabric application, engine tuning, prop hanging, and all the other skills that go into the training of a journeyman mechanic, but there would be a change in emphasis. Additional time and training would go to strengthening comprehension of basic electricity, mathematics and physics.

The changes recommended in the Notice of Proposed Rulemaking are the result of three years of study and planning by educators, aircraft maintenance specialists in industry, FAA officials, and others who evaluated the hundreds of tasks normally associated with the aviation mechanics trade.

STUDENTS will spend more time in school. The airframe, and the powerplant rating each will take 1,150 hours, upped from the present 960. (400 of these hours will be devoted to general studies)

The dual rating course will take a minimum of 1,900 hours, 250 more than is required presently.

The proposal permits schools to credit students for courses satisfactorily completed at an accredited college, state-owned vocational or trade school, a military technical specialty school, or at another aviation maintenance technician school. The amount of credit given would be determined by testing or by an authenticated transcript of grades showing curriculum, hours of attendance and grades. Applicants with military or technical specialty training will be required to take an entrance test.

Schools applying for an aviation maintenance technician school certificate or rating, or for additional ratings, must have sufficient instructors holding appropriate mechanic certificates or ratings, the exact number to be determined by FAA. The proposal recommends a minimum of one rated instructor for each 25 students in each shop or laboratory class. However, the schools may provide instructors, who are not certificated mechanics, to teach mathematics, physics, drawing, and similar subsubjects.

Schools would be required to establish and maintain an acceptable record system for determining final course grades and for controlling student attendance.

The proposal also would amend present rules governing aircraft mechanic schools to allow issuance of a *certificate of completion*, as well as a *certificate of graduation*. The distinction is made because in some states, tax-supported technician training programs conducted at high schools, junior colleges, colleges and universities, may issue only one graduation certificate in a form prescribed by the state—which may not meet the present Federal requirements. The proposed rule change would provide a legal basis for permitting these schools to issue certificates of completion concurrent with a certificate of graduation.

THE new rule would establish a method controlling the quality of instruction by use of a "national passing norm." The "norm" is a number representing the percentage of all graduates (of a curriculum for a particular rating) of all certificated aviation maintenance technician schools who apply for a mechanic certificate or additional rating within 60 days after graduation, and who pass the appropriate FAA written test on their first attempt, within a period of 24 calendar months.

The percentages recommended in the proposal are:

(1) For a school graduating fewer than 51 students during a 24-month period—the national passing norm minus the number 20.

(2) For a school graduating at least 51, but less than 201 students during that period—the national norm minus the number 15.

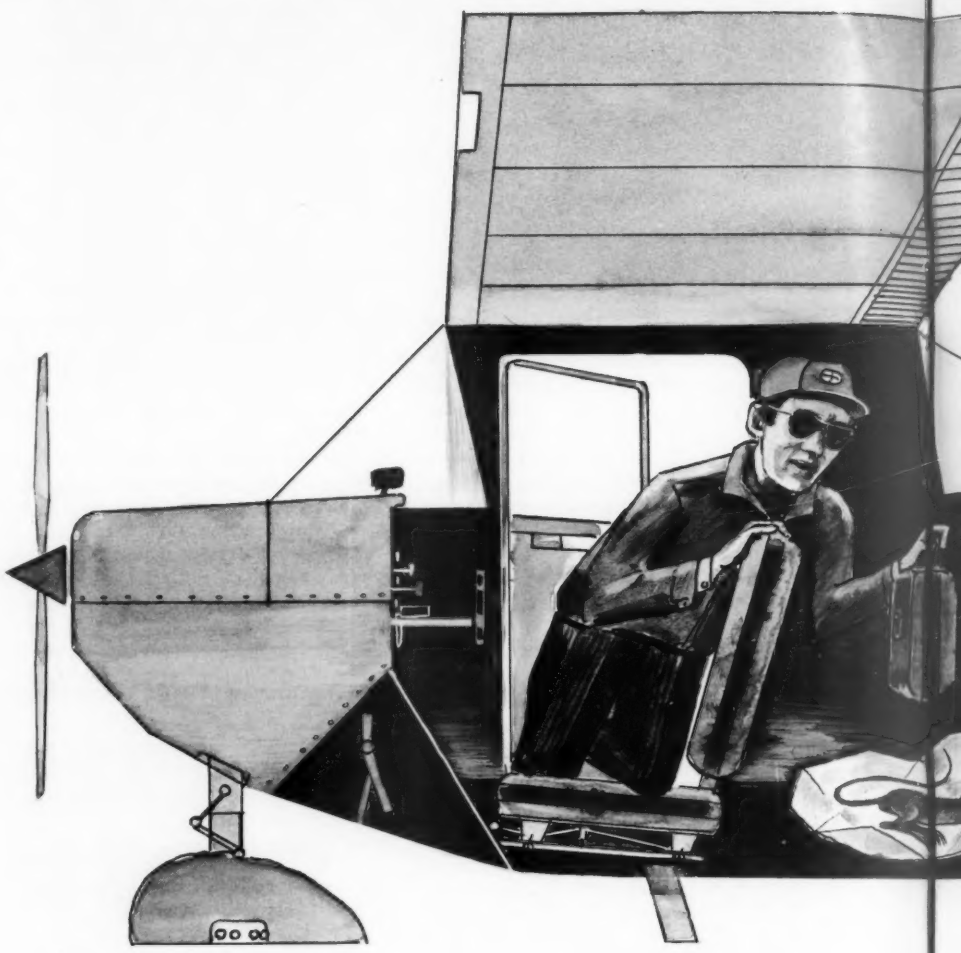
(3) For a school graduating more than 200 students during that period—the national passing norm minus the number 10.

Established "aviation maintenance technician schools" now in operation—there are 108 certificated aviation mechanics' schools in the U.S.—would have two years after the rule change becomes effective to apply for certification under the amended FAR, Part 147 (Mechanic Schools).

Comments on the proposal, "Name, Operations and Curriculum of Certificated Mechanic Schools," (Docket No. 9444, Notice 69-6), should be submitted before June 4, 1969, to FAA, GC-24, 800 Independence Ave., S.W., Washington, D.C. 20590. ■

Left—the proposed changes in mechanic training would relax in some cases and tighten in others the requirements for work space available to students. **Right**—changes in training curriculum would require a minimum of one certificated instructor per 25 students.

(Photos: Northrop Inst. of Tech.; Embry-Riddle Aeronautical Inst.)



FREDDIE'S F

(or the Saga of A S

I SHOULD have guessed there was something wrong about Freddie from the beginning. All his fine talk about leaving the dull earth and wafting our way to a love nest in the sky—oh, brother! A hole in the ground—that's what he called our home here, and I had to admit it was kind of damp and drafty and bleak in the winter, and so I fell for his line. Well, I've got my feet back on the ground now and you can just bet that's where they're going to stay. What an experience! I'm still shaking.

I must admit, it was nice for a while. I always felt I was born for the *dolce vita,* and that was it—a swingin' penthouse in the sky, luxurious furnishings, foam rubber bedding, bubbleglass bathhouse, parties every night, and mad romantic gambols in the dewy dark . . . the whole thing. Just the same, what I say is, if anyone ever offers to fly you to the moon, take a good look at his credentials before you let yourself get buckled down in his silvery plane.

What a crazy time that was. All those midnight fly-ins as Freddie called them. He'd round up a bunch of his hangar pals and their female counterparts, as you might say, and we'd get higher than a kite before we even left the ground. You know, I think it must be something about the way the moonlight streams down on you through the plexiglass that turns me on. Some nights we'd find ourselves dancing on the wings until we were so dizzy we'd almost fall. Then, we'd stumble back into the cockpit and argue about where we wanted to fly, and usually doze off and sleep until noon.

WE'D wake up with a head so big we thought they would have to unweld the airplane to get us out of there. I'm not saying what we got high on, but I'll give you a hint—there's a lotta glue left in some of them airplanes, never mind all the aluminum and plastic.

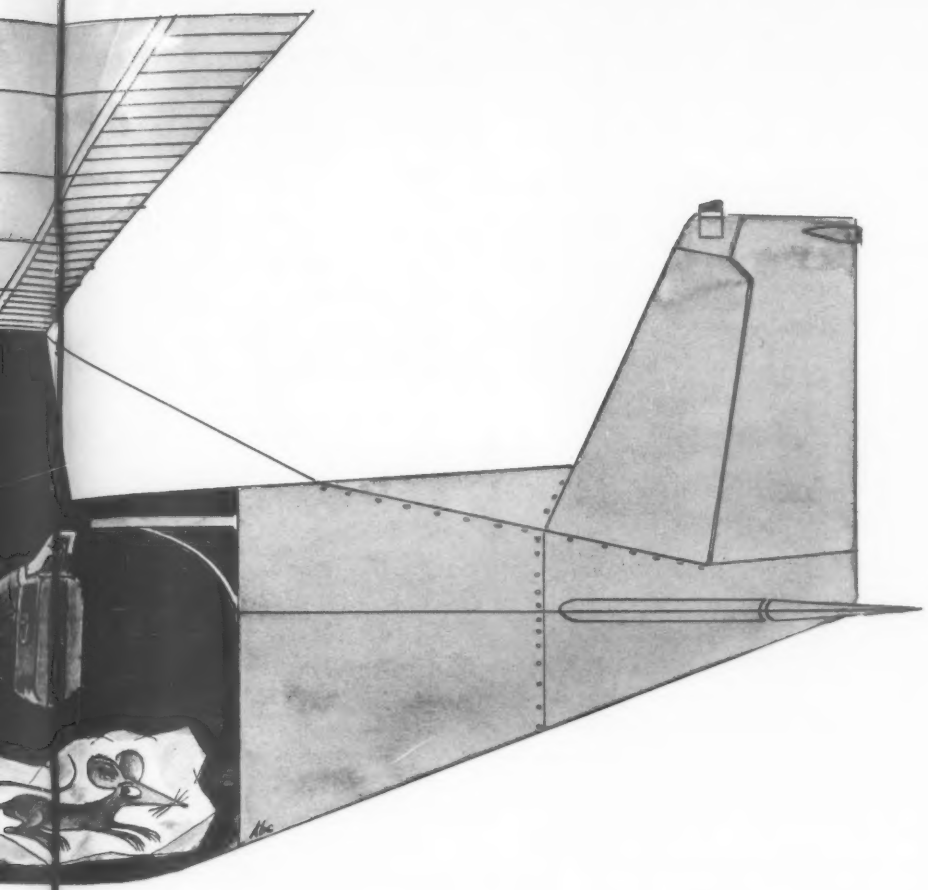
I knew we'd get into trouble sooner or later. I mean, I never dreamed it was really illegal or anything like that, or I'd have pulled out like a shot. But I thought it was kind of odd the way Freddie kept insisting that an airplane was only safe after sundown. He claimed that airports were too crowded during the day—airport congestion was a national problem, according to Freddie. Well, maybe it was at some airports, but at our little short stripper, the runway was covered with snow practically all winter long—which gives you some idea of how congested the place was. Freddie also claimed he needed the moon or the stars to navigate by, which also sounded just a little peculiar. I mean, we practically lived on maps and old potato chips. Slept on them too, I might add. Rugged.

But Freddie was the pilot in command, as he liked to remind me. He told me he had practically cut his eye teeth in airplanes, and as for me, well, I believed him when he told me a carburetor was something you measured cars with, so what could I do but go along with him?

Another thing that bothered me was the way he used to get so high on all the "glue." I don't know where he got it frankly. He'd just duck his head behind the seat and a few minutes later he'd have a funny smell on his breath and his eyes would be rolling. Some pilot in command! There were days when it made me nervous just to see him sitting behind the wheel. Buckle up, baby, he'd say. We're going to dust off a few stars. The way he flew, I wouldn't have been surprised.

I don't know where the time went, but before I knew it winter was over. We came out to the airplane late one afternoon and noticed grass sprouting around the tiedowns. The way Freddie reacted, you'd think the place had been mined.

"Baby," he yelped, "we got to split. It's Gus!"



S FREAK-OUT

of A Spring Hangup)

"Who's he? Gus the fuzz?"

I'd been expecting something like this.

"Gus is the guy that owns this airplane, that's who."

"You mean this is not your own little bird?"

"Well, no. Say where do you think I'd get all that bread?"

"The owner is a friend of yours?"

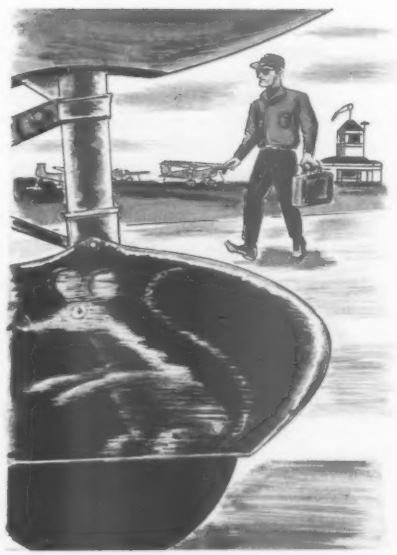
"Well, sort of. I just sort of look after his plane while the guy's away. Gus goes down to Florida for the winter. Comes back as soon as the weather warms up and he can't wait to get flying again."

"Good," I said, "we'll check him out."

"No, baby," Freddie said. "Gus doesn't go for socializing. Real serious flyer type. Especially after last year."

"What happened last year?"

"Aw, I left a few odds and ends lying around, and a rag got sucked up in the air intake when he took off in a hurry. He bought the farm."



"So now he's a flying farmer, So what?"

"So now he gives the plane a real careful going over before he spins the prop. Practically vacuums it from nose to tail. When he sees some of the junk left around from your parties . . ."

"*My* parties?"

". . . he'll go ape. He'll go after us with a cleaver, I tell you. You don't know these airplane drivers."

"Oh, pooh. Stand up to him. Are you a mouse or a man?"

"You mean a man or a mouse. I'll tell you what I'm going to be—*long gone*. We better separate. I'll hole up in the woods for a bit. You duck in with your mother. I'll give you a whistle as soon as things quiet down . . . why the funny look?"

"You don't know how to whistle."

"I'll practice. Don't worry, I'll come and get you baby."

"I'll bet. So this is it, eh Freddie? Good-bye-my-lover-goodbye?"

"Baby—"

"Don't baby me, you fly-by-night rat fink—"

"Ssh!"

I turned around and saw this character with the gum boots and dark glasses, carrying a clipboard and hustling down the line. When I turned back to Freddie, I was just in time to see him disappearing into the woods. My hero!

I still thought he was making up most of that story about the owner, so I decided to stick around. I hopped up into the cockpit, ducked down behind the rear seat and pulled some canvas sacking over me.

Soon, this pilot-type came up and started the usual bit, kicking at the tires, waggling the wings, all that stuff. Actually, he really did a king-size preflight out there, because by the time he opened the door and poked his head into the cockpit, I had fallen asleep in back and the canvas had slipped away. The next thing I knew I was eyeball to eyeball with the maddest looking human being it has ever been my misfortune to see.

To tell you the truth, I was a little embarrassed. What with all the empty peanut shells, the place did look a little like the balcony after a kids' matinee in Hoboken, and it was a little late to start tidying up. I shot out of there like I was jet propelled, landed on the grass on all fours, and didn't stop running until I was halfway home to Mama's.

Well, you've all heard the story about the country mouse visiting the city mouse and vice versa, so I guess hearing about Freddie the Flyer is nothing new. He wasn't really a bad sort, and he showed me a new style of living. But I'm glad to go back to being a simple field mouse again. I'll leave the flying to Gus.

Lewis Gelfan

RAG WINGS

Fabric covered flying machines are still alive and flourishing unexpectedly

The durable Piper **Super Cub,** with an empty weight of only 930 pounds, is a classic fabric-covered plane. Still in production, the **Super Cub** traces its lineage back to pre-WW II.

WHILE America's humming general aviation aircraft industry is busy five days a week turning out a steady stream of shiny aluminum airplanes, the fabric-covered plane is far from becoming a museum piece. The special appeal of these "glue and dope" jobs is partly sentiment and partly practical. With proper care and use, they are durable as well as flexible.

There is no exact count of how many of the 114,186 registered general aviation aircraft are wholly or in major part fabric-covered, but the number has been estimated as high as 25,000. As time and attrition remove some fabric-covered planes from the rolls, new additions are made by aircraft manufacturers, by amateurs building experimental planes, and by restorers breathing new life into the large number of elderly planes that slip into the antique category each year.

Re-covering aircraft with fabric is a multi-million dollar business in the United States. One major supplier of fabrics reports no decrease in his market in the past 20 years. In addition, new fabric-covered aircraft are being manufactured by Piper, Citabria, Maule, Waco and Bellanca. By metal plane standards, the production numbers are modest but the very fact they are being made at all indicates a demand. Moreover, there is a brisk market for used fabric-covered aircraft.

The economic advantages of fabric covering over metal are meager—fabric is a bit lighter than metal, has less drag, can be formed inexpensively into compound curves such as gull wings, and can be shaped to follow non-standard fuselage and flight surface lines.

Hail No Threat

Fabric covered flight surfaces are just as vulnerable to icing as are metal surfaces. A fabric covered plane, however, is rarely equipped with de-icing or anti-icing devices because of technical difficulties in such installations. And because such aircraft are rarely equipped for IFR flight, few get into icing conditions.

Unless the fabric is very old and in a seriously deteriorated condition, hail offers no greater threat than that it does metal aircraft. On the rare occasions when penetration is made, the damage is self-limiting —it is rare that a whole wing panel is ripped loose by hail damage. In fact, fabric fanciers point to the resiliency of fabric: hail bounces off leaving no trace, while it frequently leaves permanent pock marks in all-metal wings.

Grade A cotton and Irish linen, which trace their lineage back to the earliest days of flight, still command a large part of the aircraft fabric market but they seem to be losing their favored place to the synthetics —dacron (Ceconite, Aviatex, Lincoln Cloth, etc.) and fiberglas (Razorback). There are eager advocates of each of the coverings; all have their merits and demerits.

Grade A cotton and linen are easy to apply, take finishes well, and are cheaper than dacron and fiberglas. While prices vary with georgaphical location and competition, cotton is the least expensive, Irish linen costs about 20 per cent more, dacron about 50 per cent more than cotton, and fiberglas about 100 per cent more.

The cost of the fabric is relative. Despite its high initial price, fiberglas has the economic appeal of a relatively permanent form of covering. Grade A cotton and Irish linen, in that order, have the shortest life spans, while dacron occupies the middle range. The most important single factor contributing to aircraft fabric longevity is a hangar. If the plane is pampered with a permanent shelter, its fabric will last longer, by 20 to 40 per cent, than if it spent most of its time tethered in the open.

FAA inspectors recall hangared planes covered with Grade A cotton or Irish linen that remained in serviceable condition for 15 years after the covering was applied. On the average, however, cotton will still be airworthy up to about 8 years in the case of a hangared plane, as compared to 4 or 5 years when stored outside. Irish linen will last about 6 to 7 years outdoors and about 10 years inside. Dacron may have a life of 10 to 12 years when kept outside.

Other factors influencing aircraft fabric life are: how well the job was done in the first place, the number and composition of the coats of dope and finishes used, and the frequency of wash and wax upkeep. In addition to contributing to the life of the fabric, a thoroughly clean and waxed skin will add speed to the aircraft.

Moisture Is Destructive

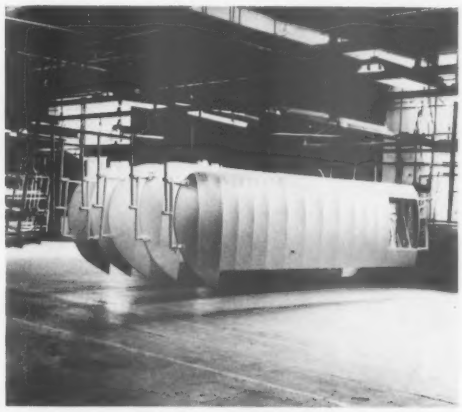
Ventilation is vital to the life of aircraft fabric. Proper design calls for free circulation of air within enclosed compartments and drain holes are provided and must be kept open to allow moisture to escape. Moisture attacks a fabric-covered plane from the inside, where it forms by condensation. Even a hangared aircraft is vulnerable to condensation if the insider temperature changes much during the day. Moist air gives up some of its liquid as the temperature drops, coating surfaces with a wet film. The cycle is repeated daily, setting the stage for fabric and wood mildew and rot, as well as metal corrosion.

Laden as it is with chemical salts and hydrocarbons, smog has a destructive effect on cotton fabrics, aircraft covering not excluded. Wherever the dope or enamel cover is cracked down to the fabric, smog particles can enter and release an acid attack on the material.

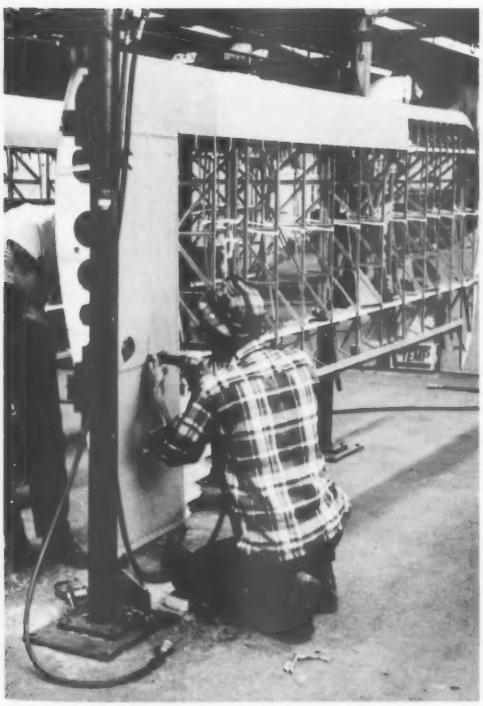
But sunlight is probably the greatest enemy of a fabric-covered aircraft. The ultraviolet rays of the sun cause the base coats of dope to decay and the destructive effect

Worker sewing fabric to ribs. Needle handwork is still an important skill in aircraft manufacture and maintenance.

Below—with the fabric drum-tight under the required number of coats of dope, the next step is adding color trim. Note the absolute cleanliness and order of the paint shop area.



Left—Piper **Pawnee** ag plane is one of several new aircraft which are almost entirely fabric covered. Turtleback is one of few metal "break away" units giving access to fuselage interior.



Before re-covering aircraft, the structure must be thoroughly checked for corrosion, deformed or broken members, wood rot, enlarged bolt holes, broken welds and rust. On wooden aircraft, be on the lookout for glue separation, weathering, cracking, warping or open grain.

is the same on cotton, linen and dacron. To guard against sun penetration, the fabric is covered with at least two coats of aluminum dope applied on top of the required first four coats of clear dope. The aluminum layer, called the sun barrier, is covered by not less than two coats of colored dope or enamel. (Untold damage can occur to fabric if exposed to ultraviolet rays before the aluminum is applied.) The actual number of coats of dope and enamel is up to the owner after the FAA basic minimum of four coats clear, two coats aluminum, and two coats of color (or clear) has been satisfied.

Fifteen coats are common. Twenty are not unusual, and some aircraft have as many as 40 or 45. Properly applied, accompanied by lavish amounts of painstaking dry and wet sanding, and followed by gentle massaging with rubbing compound, the resultant product of multi-layers of dope is a glass-like finish that adds mph to the aircraft and protects the underlying fabric.

Testing Fabric

Even if knowledgeable on the subject, the layman has no accurate way to determine the underlying condition of aircraft fabric. While the motoring fraternity has its tire kickers, the aircraft community has its fabric knucklers. Rapping the fabric tells as much about its condition as kicking a tire tells the shape the car is in.

Fabric can be tested in several ways, but only one, the laboratory test, is really accurate. The extra cost is worth the money. Under this procedure, a sample of fabric is cut from the most weather beaten area of the plane and sent to a laboratory where the finish and dope is dissolved away, leaving the fabric in its natural state. The samples are then machine stretched and tested.

Less accurate methods used in the field are the Seyboth and Maule tests, but since temperature and humidity cannot be controlled, both of these methods are only close approximations of the fabric condition.

"In the Green"

Key to the Seyboth tester is a tapered cylindrical probe which has a needle point, gradually increasing in thickness to about one-half inch. The probe, which is colored green, orange, yellow and red, measures fabric resistence to tearing under calibrated spring tension. The fabric to be tested is pierced by the probe, the depth of penetration being measured by the colored bands. Hence, the expression "the fabric is in the green," meaning that it is airworthy. "Third green" indicates the highest resistance. In the order of declining resistance the range is: third green, second green, first green, orange, yellow, and red—the least resistance.

A plunger is also used in the Maule test but it has a blunt tip and does not penetrate the fabric. The resistance is measured on a dial. While this will show minimum required strength, the only way to discover the actual strength is to apply pressure until the fabric is punctured.

Fabric that tests less than 70 per cent of the original required tensile strength is deemed not airworthy. Grade A cotton fabric has a minimum new strength of 80 pounds per inch, Irish linen runs about 100, dacron from 120 to 160, and fiberglas about the same. But they all fail when they test less than 70 per cent of the minimum new fabric strength that was required for original certification of the aircraft.

Covering an airplane is a complex job demanding a high degree of skill, to say nothing of the specialized equipment and adequate space. An owner may attempt the job, provided all work is done under the supervision of a licensed mechanic. Exempted are bona fide amateur builders who are making their own aircraft under the guidelines spelled out in Advisory Circular 20-27A, "Certification and Operation of Amateur-built Aircraft." Otherwise, an unlicensed person is restricted to minor maintenance, such as patching small holes and tears, and refinishing decorative coatings of the fuselage, wings and tail group.

As a casual glance around any airport will reveal, fabric-covered aircraft are not on the verge of extinction. Indeed, used fabric-clad planes, because of their relatively low price, make aircraft ownership a realistic possibility for many who would otherwise be grounded. Reasonable care and intelligent use of the airplane will allow it to be flown safely for many happy hours.

Frank J. Clifford

famous

FLIGHTS

SIBERIAN FURLIFT

The First Round Trip Flight To Asia

Hamilton monoplane airlifted Noel Wien, mechanic Doc Cripe, and over 1,000 pounds of fox pelts on the perilous Siberian flight.

THE message came crackling through 1,150 miles of polar air, from a trading ship frozen solid in the Arctic Ocean off Siberia, to the cramped and steamy offices of Wien Alaska Airways in Fairbanks: *". . . American schooner ELLIS F icelocked three miles off North Cape, Siberia. Can you airlift large fur cargo from ship to Alaska for transhipment by ship or rail to U. S.?"*

At stake was a potential fortune in raw fur. If the cargo of prime white fox pelts could be delivered to the New York market ahead of the spring thaw it would be worth $100 per skin. If not, the price would drop to $50 or less per skin.

The message was received early in February 1929, when Noel Wien and his younger brother, Ralph, were driving themselves hard, from sunup to sundown, trying to fly their infant airline from the red to the black ink side of the ledger. The plea from the *Ellis F* offered immediate cash and potential fame.

For several days the Wien brothers spent trying to convince themselves that the mission was foolhardy—the time of the year was wrong, the weather impossible and the risk of life and property too great. Besides, they would neglect their regular business. They lost the argument. The spirit of adventure that had lured them from their native Minnesota to open the skies of Alaska to air travel won out. Wien Alaska Airways would airlift furs from Siberia.

After a blizzard of wireless messages involving the ship, the Wiens in Fairbanks, the vessel's owner (the Swenson Herskovitz Co., in New York) and the Russian authorities, a deal was made. Wien Alaska Airways would fly the 2,300-mile roundtrip between Fairbanks and North Cape for $4,500; additional flights would cost $4,000 each.

Among the last wires sent was one that went to Lloyd's of London, describing the mission and asking for a quotation on insurance. The venerable British firm, reputed to insure any risk if the price was right, turned the brothers Wien down cold.

Undeterred, the Wiens decided that Noel would pilot the shiny and very much unpaid-for new *Hamilton*, a single-engine monoplane with a corrugated aluminum skin similar to that of the Ford Trimotor. With him would be his mechanic, Calvin "Doc" Cripe, a wizard with a tool box and a seasoned Arctic flyer. The two men arrived in Nome from Fairbanks on February 27, 1929, where they made final preparations for the trip while awaiting a favorable weather report from the *Ellis F*.

IT came early on the morning of March 7 when the schooner reported ceiling and visibility unlimited, winds of 30 to 40 mph and temperatures of 30 to 40 degrees below zero. Except for the wind, similar conditions prevailed at Nome.

With their plane loaded with 900 pounds of supplies and food, including a beef hindquarter and a live pig, Noel and "Doc" Cripe thundered down the snow packed runway at Nome at 8 a.m. They set a course over Bering Strait to East Cape, Siberia and then on to North Cape. Soon after flying into "tomorrow"—crossing the International Date Line—the engine oil pressure began to creep upward.

A hurried cockpit consultation led to an unpleasant diagnosis; the oil tank vent, located on the leading edge of the right wing near the cockpit, had frozen up. By opening the side window and straining, Cripe was just able to reach the vent opening with his knife. Hacking furiously, he cleared the vent. Cripe had to repeat the process every 15 minutes on both legs of the trip.

Six hours and ten minutes after taking off from Nome, the two flyers roared over the tiny cluster of huts that comprised North Cape and immediately spotted the schooner, a tiny black chip in the gray ice and snow. The ship's crew and natives from the village were still hacking out a landing strip, trying with axes and shovels to smooth the hillocks of ice and frozen snow.

Despite days of grueling labor, the "field" paving effort was less than a complete success. When Noel set the *Hamilton* down the plane shook, rattled and rang as it went clattering down the "runway," threatening to tear itself apart as it jumped and bounced from hump to hump on the rough hard-packed snow.

The plane's arrival touched off a wild celebration, hosted by the ship's captain and crew and the mayor and city fathers of North Cape. Mail was exchanged, supplies unloaded and frantic preparations made for an early morning departure.

While the captain fed his guests a massive breakfast, his crew and the fur trading company's agent were doing a stuffing job themselves. With their eyes cocked on the market, they managed to cram 1,340 pounds of baled skins into the *Hamilton's* interior, including 250 pounds wedged into the space

aft of the passenger cabin.

Frantic protests and earnest lectures on weight and balance nothwithstanding, the trappers insisted that every possible pelt be crammed aboard. Noel and "Doc" refueled the *Hamilton* on old, low-grade gas which had been stored at North Cape for years in anticipation of Russian aircraft that never appeared. The intense cold (50 degrees below zero) made it difficult to preheat the engine, oil system and oleo shock struts. Finally the engine was started, but it spit and gagged on the inferior fuel and threatened to quit momentarily.

With the throttle full out, Noel signaled the motley fur-swathed "ground crew" to release their grip on the horizontal stabilizer. Wien used up all of the 2,000 feet of "smooth" ice and almost as much unprepared ice without getting airborne. He taxied back to the starting point and over heated objections unloaded 250 pounds of fur from the tail section.

On the second takeoff attempt at noon, the temperature had "climbed" to 38 below zero. Noel and "Doc" were almost at liftoff speed when they hit an ice ridge and catapulted into the air, only to smash down heavily. The third try was successful.

The return trip to Nome took six hours and was uneventful except for the chore of chipping away the ice from the oil tank vent at regular 15-minute intervals. The furs were duly forwarded to New York to the satisfaction and profit of all concerned.

Widespread newspaper publicity hailing the feat ended further flights. In short order, Wien Alaska Airways received a telegram from Russian authorities: "Please stop sending your planes to North Cape until you receive our additional special permission."

Wien Alaska Airways has come a long way in the 40 years since Noel Wien and Doc Cripe made their historic flight. In February 1968, the airline merged with Northern Consolidated Airlines and became Wien Consolidated Airlines, Inc., with headquarters in Anchorage. From two pilots and two aircraft in 1929, the new firm now has 601 employees in all categories, and 21 planes, including two large jets.

They are still waiting for permission to penetrate the Siberian "icewall." ■

BRIEFS

• AROUND THE WORLD IN 40 DAYS, with prizes worth $120,000. Light plane pilots, flying single-engine (up to 400 hp) or twin-engine aircraft (up to 600 hp) are invited to participate in a "Round-the-World Tour" which will start in Paris on August 3, 1969, and end in Paris. The course will include major countries of the Northern Hemispheres and is expected to last 40 days. Contest rules require each aircraft to carry a photographer and reporter, apart from the crew, to shoot movies which will be shown on TV worldwide and scored as a regular part of the competition. Details are available from "Societe Man Production," 17 Bd. des Batingnolles, Paris 8e—France.

• CRASH LOCATOR BEACONS would be mandatory for all air taxis under an FAA rule proposal which would also require the installation of survival radio equipment on all extended overwater flights. Acceptable beacons would operate from their own power source, transmitting automatically after an accident. Comments on the proposal (Notice No. 69-11; Docket No. 8744) should be filed with FAA's Office of General Counsel, Rules Docket, GC-24, 800 Independence Ave., S.W., Wash., D. C. 20590. Deadline is May 19, 1969.

• CLEAR AIR TURBULENCE and its effects on jet aircraft have been examined in a joint study by FAA and the Naval Air Development Center, Johnsville, Pa. The tests confirmed that pilots using currently recommended "fly attitude loosely" techniques experience lower "G" forces, lower Mach, angle of attack and altitude excursions than those who flew attitude with tight control.

Details are available in "A Dynamic Simulation Study of Sweptwing Transport Aircraft in Severe Turbulence," AD 845 095L, available from the Clearinghouse for Federal Scientific and Technical Information (CFSTI), Springfield, Va. 22151, at $3.00 a copy. Orders should include title and "AD" number and a check made payable to CFSTI.

• OUT WHERE THE WEST BEGINS, flight operations are often suspended due to natural phenomena. A recent example occurred at Jackson, Wyo., when all flying operations were halted for 15 minutes while five elk locked horns in combat on the runway.

• PRIVATE PILOTS PLANNING FOREIGN FLIGHTS now have a "one stop" source of information on what Uncle Sam expects of them when flying to and from points outside the U. S. "Customs Guide for Private Flyers, 1968" (individual copies available for 20 cents each from the Superintendent of Documents, U. S. Government Printing Office, Washington, D. C. 20402) is prepared by the Bureau of Customs and compresses a lot of information into a little space.

• AIRCRAFT INSPECTION PROGRAMS FOR AIR TAXIS, where deemed necessary by FAA, would be established by the certificate holder, under the proposed rule change (Notice 69-4, Docket 8041). Interested persons have been granted an additional 30 days, until May 31, 1969, to comment on the NPRM. See "TAXI! TAXI!" (FAA AVIATION NEWS, April, 1969.)

AVIATION EXECUTIVE NAMED FAA ADMINISTRATOR

John H. Shaffer, a top level aviation executive and veteran Air Force pilot, was sworn in last month as Administrator of the Federal Aviation Administration.

A native of Everett, Pa., Mr. Shaffer comes to FAA from TRW, Inc. a major diversified manufacturer of aerospace and automobile components, where he had been a corporate vice president.

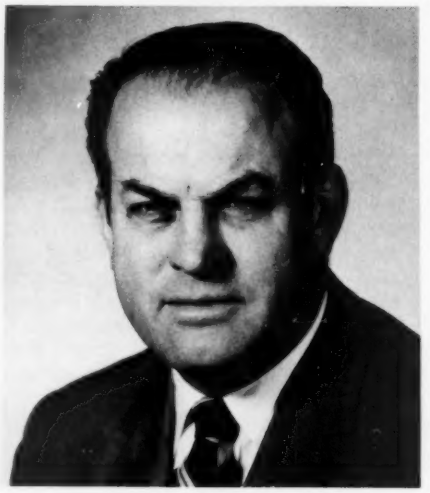
A West Point graduate and holder of an M.S. degree from Columbia University, the new Administrator served in the Air Force for eleven years, attaining the rank of lieutenant colonel.

During World War II he flew 46 combat missions as pilot of a Martin B-26 with the 9th Air Force in Europe.

Among his later assignments were Production Project Officer of the Air Force's B-50 program, and Weapons System Program Manager of the B-47 program.

He resigned his Air Force commission in 1954 to become General Production Manager and Assistant Plant Manager of the Ford Motor Company's Mercury Assembly Plant at Metuchen, New Jersey.

Coming to TRW in 1957, Mr. Shaffer was Assistant to the Group Vice President, Automotive; Vice President of Marketing and Sales of the Equipment Group (Defense); and then corporate Vice President for Customer Requirements, in Washington, D.C.



John H. Shaffer

FAA Proposes New Taxiway Lights As Move to Speed Ground Handling

Ground handling of aircraft may be speeded up by the adoption of green centerline taxiway lights mounted semi-flush in taxiway centerlines in place of the present array of elevated blue lights along the edges of taxiways, in accordance with new FAA guidelines.

Standards for the design, installation and maintenance of the new system of green centerline lights are contained in "Taxiway Centerline Lighting System". The pamphlet also contains fold-out drawings of methods for installing the lights on both curved and straight taxiways.

Complex taxiway intersections and large ramp areas can present a confusing vista to pilots because of the "sea of blue" appearance and the poor guidance provided by the elevated edge lights. As a result, aircraft must taxi at low speeds, thus slowing ground traffic. The green taxiway centerline lighting provides positive visual guidance along the taxiways.

Copies of advisory circular AC 150/-5340-19, "Taxiway Centerline Lighting System" may be obtained free from FAA, TAD-484.3, Washington, D. C. 20590.

FAA Tests Low-cost Anti-icing Plane Surfaces

FAA technician applies heated iron to leading edge of Cessna 150 wing section to clear space for the attachment of test devices during the agency's six-week study (Feb. 3-March 14) of aircraft icing at NASA's Lewis Research Center, Cleveland, Ohio. Investigators tested more than 15 anti-icing products in their search for low-cost materials that can be applied to the surface of an aircraft to inhibit or slow down ice accumulation. Among the products tested were plastic films such as Teflon-S, polyox film, curable silicone film, silicone organic copolymer, and silicone waxes.

Giant Air Scoop for Mammoth Jet

Big enough to accommodate a Volkswagen bus, this full-scale mockup of a jet engine inlet duct will pipe air to the number 2 engine in the tail of Lockheed's tri-jet L-1011 (air-bus). The duct is seven feet in diameter and 30 feet long. Each of the Rolls-Royce turbofan engines will produce 40,600 pounds of thrust.

Proposed Rule Would Require Advanced Transponders

All aircraft, general aviation as well as air carrier, operating in controlled airspace at or above 10,000 feet, VFR or IFR, will have to be equipped with radar beacon transponders having 4096 individual identification codes and automatic altitude reporting capability after Dec. 31, 1972.

This is the gist of an FAA notice of proposed rule making which would also make the equipment mandatory in all aircraft flying in positive control airspace (from 18,000-60,000 feet over the northeast and north central U.S., and from 24,000-60,000 in almost all the other states).

The new rule would be an extension of FAA's present requirement that all aircraft operating in positive control airspace be equipped with 64-code radar beacon transponders.

Responding to associated ground equipment, aircraft equipped with the 4096-code transponder would automatically "report" their altitude and identity to ground controllers. The information would be electronically transcribed to the face of the radar scope in the form of a small alphanumeric data tag which would be tied to and move with the aircraft target or "blip".

Interested persons should submit comments on Notice 69-9, Docket 9471, to the FAA Rules Docket, GC-24, Washington, D. C. 20590, on or before June 12, 1969.

FAA Aviation News welcomes comments from the aviation community. We will reserve this page for an exchange of views. No anonymous letters will be used, but names will be withheld on request.

• Economy Lights

FAA Aviation News for September, 1968, carried a brief item about a simplified VASI (Visual Approach Slope Indicator) recently approved by FAA for small airports. We operate a small private airport and would like to have more information and details on this system.

R. M. White
Dallas, Texas

The simplified two-box VASI which would be installed at a small private airport is described in Advisory Circular AC 150/5340-14A, "Economy Approach Lighting Aids," and in AC 150/5345-28, "Specifications for L-851 Abbreviated Visual Approach Slope Indicator." Copies are available free of charge from Federal Aviation Administration, TAD 484.3, Washington, D. C. 20590.

The equipment is manufactured by Sylvania Electric Products, Inc., 100 Endicott St., Danvers, Mass., 01923.

• Best Test for Fiberglas

I own a Piper PA 12 which is covered with fiberglas. Strip tests and punch tests proved out okay—but which test is the correct one, and why should fiberglas ever lose its strength?

Jerry Commins
San Anselmo, Calif.

Strip testing, in which a one-inch strip of fabric is pulled apart by a machine in a controlled climate, is the only really accurate fabric testing method. Punch testing (Seyboth and Maule) are close approximations because of variables in temperature and humidity encountered in the field.

Fiberglas does not deteriorate or lose its strength but rib stitching and processing and finishing materials do deteriorate. This has an effect on the airworthiness of fiberglas covering.

Normally when the finish becomes brittle and starts to crack, the fiberglas cloth becomes brittle at the same time and is susceptible to shattering when struck with a solid object. As long as the finish remains in the pliable state the fiberglas cloth retains its elasticity and strength.

• Regs for Foreign Carriers

Are air carrier aircraft carrying passengers into and out of the U. S., especially those on Mexican routes, subject to FAA regulations, inspections and standards of maintenance?

Willerd Spankus, M.D.
Houston, Texas

Foreign carriers are required to abide by the general and flight rules in Part 91 of the Federal Aviation Regulations. The maintenance rules in Part 91 do not apply to foreign aircraft. Foreign air carriers are subject to Part 129 of the Federal Aviation Regulations, "Operations of Foreign Air Carriers," which provides for the issuance of operations specifications to foreign air carriers and contains additional regulations applying to foreign air carriers.

Under Parts 91 and 129, Foreign air carrier aircraft must have a current airworthiness certificate issued or validated by the country of registry. No maintenance standards in the Federal Aviation Regulations apply to foreign aircraft.

• Knots So Fast

A reader from Atlanta commenting on the continuing discussion of knots versus miles suggests that knots be used to measure airway width, control zone size, and visibility distance. I suspect he meant nautical miles, rather than knots since a knot is a measure of velocity (one nautical mile per hour equals one knot). As such, a knot is not a measure of distance.

Hugh Fairclough
Seattle, Wash.

• Starting An Instrument Shop

I am interested in starting a sales and repair business of all general aviation flight instruments and electronic gear. Can you advise me on pertinent regulations, licenses, equipment needed, and whom to contact about getting started?

Frank B. Swenson
Fort Worth, Texas

The basic FAA regulations governing the kind of operation you propose are: FAR 43, "Maintenance, Preventive Maintenance, Rebuilding and Alteration", FAR 65, "Certification: Airmen Other Than Flight Crew-members", and FAR 145, "Repair Stations". You may also obtain helpful information first hand by visiting the FAA General Aviation District Office, Room 206, Administration Bldg., Meacham Field, Fort Worth, Texas 76106. Phone: MA 4-1185/6.

• Seeks Long Lost Bird

During the early 40s, when I started to work for the Civil Aeronautics Administration, I had the opportunity to fly two Fairchild "24s". I took my young daughter along for the ride and now, after all these years, she wants a photo of a Fairchild "24."

Do you have such a photo, or could you tell me where to obtain one? I do not know the model or series but it was a 4-place job, and I believe it was powered by a Warner engine. I would be glad to pay for the picture.

W. K. McFall
4321 West Rosedale
Fort Worth, Texas 76107

FAA Aviation News does not have such a photo but perhaps our readers do.

• Firefighting for Pilots

I will graduate from an accredited flight school this spring with commercial, instrument, multi-engine, and instructor ratings. I am interested in employment with the U. S. Forest Service in the Pacific Northwest. Can you please furnish me with any information on how to get such a job?

Edward Kish
Granite City, Ill.

The Forest Service employs very few full-time pilots but relies instead on contract pilots to bolster its forces during the forest fire season. No hiring is done in the Washington office of the Forest Service. Instead you should visit, or write to: U. S. Forest Service, Department of Agriculture, ATTN: Personnel Division, Federal Bldg., Missoula, Mont. 59801.

• Brass Wings

I would like to say to your January correspondent from Idylwild, Calif., "You gotta be kiddin'," when he says he considers membership in an aviation association is more important than a subscription to the *Airman's Information Manual.*

One gives him a gold embossed ID card and a pair of brass lapel wings—the other gives him pertinent information that could save his life or at least prevent serious inconvenience to the flow of air traffic.

Ercle F. Herbert, Jr.
Washington, D. C.

• Dear Happy Homebuilt

"Happy Homebuilts" in the April *FAA Aviation News* mentioned FAA Advisory Circular AC-20-27A "Certification and Operation of Amateur-built Aircraft" as the basic governing document for homebuilts. Are there other FAA publications I should have before commencing construction?

Scranton, Pa.

In addition to AC 20-27A you should have the following Federal Aviation Regulations and Advisory Circulars, obtainable from the Superintendent of Documents, Government Printing Office, Washington, D. C. 20402, at the prices indicated:

FAR 21 "Certification Procedures for Products and Parts"—60 cents; FAR 45 "Identification and Registration Marking"—20 cents; FAR 47 "Aircraft Registration"—25 cents; FAR 61 "Certification: Pilots and Flight Instructors"—70 cents; FAR 91 "General Operating and Flight Rules"—70 cents; FAR 101 "Moored Balloons, Kites, Unmanned Rockets and Unmanned Free Balloons"—20 cents; AC 43.13-1 "Acceptable Methods, Techniques and Practices—Aircraft Inspection and Repair"—$3.00; and AC 43.13-2 "Acceptable Methods, Techniques and Practices—Aircraft Alterations"—$2.00.

U.S. GOVERNMENT PRINTING OFFICE
DIVISION OF PUBLIC DOCUMENTS
WASHINGTON, D.C. 20402

OFFICIAL BUSINESS

RETURN AFTER 5 DAYS

POSTAGE AND FEES PAID
U.S. GOVERNMENT PRINTING OFFICE

Keep a watchful eye

For the student in the sky

Suggested by C. L. Lafferty